

REMARKS

Claims 1-12 were examined and reported in the Office Action. Claims 1-12 were rejected. Applicants amend claims 1-3 and 8-12 and add additional claims 13-14. Applicants submit that no new matter has been added herein. Applicants respectfully request reconsideration of claims 1-12 as amended, and consideration of additional claims 13-14 in view of at least the following remarks.

I. Specification

The Patent Office objects to the disclosure because information on the related application from which the subject application claims priority should be updated. In response Applicants have updated the specification to indicate that the related application is U. S. Patent No. 6,627,538 B2.

II. Claims Rejected Under 35 U.S.C. § 103

Claims 1-12 are rejected under 35 U.S.C. § 103 as being unpatentable over U. S. Patent No. 5,120,925 issued to Ohnishi et al ("Ohnishi") in view of U. S. Patent No. 5,132,248 issued to Drummond et al ("Drummond").

Applicants respectfully disagrees for at least the reason that Ohnishi and Drummond cannot be properly combined. Ohnishi teaches depositing conductive films with a focused ion beam in a gas atmosphere to modify a wiring pattern. (e.g., see Figs. 8A and 8B; and column 5 lines 32-42) For example, Ohnishi teaches formation of a conductive deposition film on a sample already containing devices. (See Fig. 1C, and 6-10 and accompanying text such as column 5 lines 33-42 describing modifying a wiring pattern).

On the other hand, Drummond describes a process for forming metal or dielectric depositions to form multiple layers on a substrate. (See column 4 lines 13-20 and column 6 lines 63-68). To do this, Drummond teaches depositing materials by an ink jet printing technique to deposit or write material formulated as colloidal suspensions directly onto a substrate surface, such as via a piezoelectric driven jet

system. (See column 3 lines 56-67). More particularly, Drummond teaches a colloid content of a suspension as between 1 and 20% by weight, keeping an ambient temperature around the substrate below a 150° Celsius, and annealing using a low powered laser to homogenize and resolve the desired pattern, and to provide adhesion between the pattern and the substrate without localized melting of the substrate or excessive volatilization of the colloidal material. (See Drummond column 5 lines 10-58).

Thus, Applicants do not believe that either reference provides a motive for combining a low power laser to adhere a colloidal suspension applied by an ink jet printing system to a substrate with a focused ion beam technology for providing etching, transplantation, and repair of electronic devices already existing on a substrate. In fact, Applicants are not sure that the low power laser annealing to adhere the colloidal material would have any benefit or effect on the focused ion beam deposited metal of Ohnishi. Therefore, Applicants can only conclude that the motive to combine the references includes knowledge gleaned only from Applicants' disclosure. Hence, Applicants assert that the combination of Ohnishi with Drummond is the result of impermissible hindsight in accordance with MPEP § 2145.X.A.

Second, Applicants respectfully disagree with the rejection above and submit that independent claim 1 is allowable for at least the reason that the cited references do not teach, suggest or describe a "computer-readable program comprising ... instructions for controlling a coherent electromagnetic radiation source to heat the at least one layer," as required by independent claim 1. According to independent claim 1, for example, a system for forming at least one metal layer over a substrate may include a memory having a computer-readable program for directing the system, including instructions for controlling a coherent electromagnetic radiation source to heat at least one metal layer formed over the substrate.

To render a claim obvious all elements of that claim must be taught or suggested by at least one properly combined reference. As admitted by the Patent Office, Ohnishi fails to teach the above quoted limitation of claim 1. Also, as pointed out above, Drummond teaches a low power laser to adhere a colloidal suspension applied by ink jet printing to a substrate without melting the substrate or causing excessive

volatilization of the colloidal material. However, the Patent Office has not identified and Applicants are unable to find any teaching or suggestion in either reference that accounts for a computer-readable program having instructions for controlling a coherent electromagnetic radiation source, as required by independent claim 1. Hence, since neither Ohnishi, Drummond, nor the combination teach the limitations of claim 1 quoted above, Applicants respectfully request that the Patent Office withdraw the rejection of claim 1 as being obvious in view of the cited references.

Applicants submit that dependent claims 2-12 being dependent upon allowable base claim 1, as amended, are patentable over the cited references for at least the reasons explained above. Thus, Applicants respectfully request that the Patent Office withdraw the rejections of dependent claims 2-12 as being unpatentable over the cited references.

Also, with respect to claim 2, in addition to the reasons given above with respect to claim 1, Applicants disagree because the stated references do not teach or suggest a program having instructions for controlling the introduction of a precursor gas of cobalt, metal carbonyl, molybdenum, platinum, or tungsten, as required by claim 2. Specifically, as described above with respect to claim 1, the Patent Office has not identified and Applicants are unable to find any teaching in the cited references of a memory having computer-readable program with instructions for controlling the introduction of a metal precursor gas of cobalt, metal carbonyl, molybdenum, platinum, or tungsten, as required by claim 2. Thus, Applicants respectfully request that the rejection of claim 2 be withdrawn for this second reason.

Next, with respect to claim 3, in addition to the reasons given above with respect to claims 1 and 2, Applicants disagree with the rejection above because the cited references do not teach or suggest a controller configured to control and a program having instructions to control a vacuum coupled to the chamber, as required by claim 3. Specifically, in addition to the reasons give above with respect to claims 1 and 2, the Patent Office has not provided and Applicants are unable to find any teaching or suggestion in the cited references that account for the limitations of claim 3 cited above.

Hence, Applicants respectfully request that the Patent Office withdraw the rejection of claim 3 for at least this third reason.

In addition, Applicants respectfully traverse the Patent Office's assertion regarding claims 5-7 that "the selection of an appropriate lens for the laser radiation is considered to have been obvious to one of ordinary skill in the art at the time of the invention in order to focus the radiation on a desired spot size," under MPEP § 2144.03 and request that the Patent Office cite a reference in support of that position. Hence, for at least this additional reason, Applicants respectfully request that the Patent Office withdraw the rejection of dependent claims 5-7, as amended.

Further, with respect to claim 9, in addition to the arguments given above with respect to claim 1, Applicants disagree with the rejection above because the references do not teach or suggest a controller configured to control and a program having instructions to control one of a vacuum, a non-reacting gas source, and a reducing atmosphere source coupled to the chamber, as required by claim 9. Specifically, as noted above with respect to claims 1 and 3, the Patent Office has not identified and Applicants are unable to find any teaching or suggestion in the cited references that accounts for the limitation noted above for claim 9. Hence, for at least this second reason, Applicants respectfully request that the Patent Office withdraw the rejection of claim 9.

Further, with respect to claim 10, in addition to the reasons given above regarding claims 1 and 9, Applicants disagree with the rejection above because the cited references do not teach or suggest instructions for controlling a coherent electromagnetic radiation source including instructions to heat the layer sufficiently to remove one of carbon, gallium, and an oxygen from the layer, as required by claim 10. Specifically, as noted above with respect to claims 1 and 9, the Patent Office has not identified and Applicants are unable to find any teaching or suggestion in the cited references that accounts for instructions to heat sufficiently to remove one of carbon, gallium, or oxygen. Thus, Applicants respectfully request that the Patent Office withdraw the rejection of claim 10 for at least this third reason.

III. Double Patenting

The Patent Office provisionally rejects claims 1-12 under the judicially created doctrine of obvious type double patenting as being unpatentable over claims 1-6 of co-pending application number 10/209,453. Applicants thank the Patent Office for pointing out the provisional rejection and defer response to the provisional double patenting rejection until a time the provisional rejection becomes non-provisional.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending (1) are in proper form, (2) are neither obvious nor anticipated by the relied upon art of record, and (3) are in condition for allowance. A Notice of Allowance is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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Dated: April 21, 2004

By:


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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail with sufficient postage in an envelope addressed to: Mail Stop Non-Fee Amendments, Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia 22313-1450 on April 21, 2004.


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